IN THE CLAIMS

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

4. A method according to claim 1 wherein the magnitude of the small linear displacements applied to the surfaces is substantially equal to the product of the diameter of the colloidal spheres and the number of crystalline layers in the crystal.

5. A method according to claim 1 wherein the surfaces are displaced with respect to each other in an equilateral triangle.

6. A method according to claim 1 wherein the minimum volume fraction of monosized colloidal spheres is 0.49

7. A method according to claim 1 wherein the radius of the monosized colloidal spheres is in the range 0.0lpm to 100pm.

8. A method according to claim 1 wherein the radius of the monosized colloidal spheres is in the range 0.05pm to 10pm.

9. A method according to claim 1 wherein the material used for the colloidal spheres is at least one of a polymer, a non-linear material, a magnetic material, a metal, a semiconductor, glass doped with an active dye, polymer doped with an active dye, silica.

18. A method according to claim 12 and further comprising the step of adding to the colloidal photonic crystal means for applying an electric field to the liquid crystal material.

19. A method according to claim 2 wherein the material used for the dispersion medium is at least one of an adhesive, a polymer, a resin.

20. A method according to claim 1 wherein the dispersion medium Is an epoxy resin and further comprising the subsequent step of curing the resin to form a solid interconnecting matrix between the colloidal spheres.

22. A method according to claim 2 wherein at least one of the substantially parallel surfaces (2,3) comprises a substantially flexible membrane.

23, A method according to claim 2 wherein the series of small linear.displacements (6) is applied to the surfaces by rolling means (30,31) to produce bulk colloidal photonic crystal film (37).

24. A method according to claim 2 and further comprising the intermediate step of applying a detachable membrane to the internal face of at least one of the parallel surfaces prior to introducing the colloidal suspension.

25. A method according to claim 1 wherein the internal surface of at least one of the parallel surfaces is textured to promote the growth of multiple crystal domains.

26. A method according to claim 1 wherein the refractive index of the dispersion medium is substantially different from the refractive index of the colloidal spheres.

28. A method according to claim 2 and further comprising the subsequent step of removing the colloidal spheres from the solidified dispersion medium.

31. A method according to claim 1 wherein the two surfaces are concentrically cylindrical (20,21).

32. An essentially perfect, single face-centred-cubic colloidal photonic crystal produced by the method of claim 1.